

## WORMS ON DAIRY FARMS

*The advice in this article refers only to dairy farmers in our practice area. The parasite challenge is different in other areas and for sheep and beef farmers.*

Drench resistant worms are an increasing issue for farmers. We used to think that if we wormed often enough and with strong enough drenches, we could kill all the worms. We now realise we were wrong and the worms have won that battle. If we don't change our tactics, increasing parasite resistance will force us to change the way we farm. **Already many dairy goats are housed and zero grazed to keep them safe from multi resistant 'super worms'.**

In every worm population there are some worms which are naturally genetically resistant to any drench so unfortunately no drench is 100% effective. If you drench often and kill off all the other susceptible worms, *in the short term* you will reduce the total worm population but *in the long term* you will increase the proportion of the worm population which is drench resistant. The more often you expose the worm population to that drench, the quicker they will become resistant to it. Eventually most of the worms are resistant and the drench becomes useless.

In New Zealand resistance has already developed to all the drench families we have available today. In Taranaki research has shown resistance *on dairy farms* to the white drenches (**benzimidazoles**), clear drench (**levamisole**) and to Ivomec (one of the '**mectin**' family).

One way we can slow down the inevitable increase in the proportion of the worm population which is drench resistant is to use double or triple combination drenches. While many worms may be resistant to one drench family, very few are resistant to two and even fewer are already resistant to all three drench families.

A quick, cheap and easy check for resistance on your own farm is a '**Drench Check**'. This is faecal egg counts on dung from ten animals taken ten days after drenching. A '**Drench Test**' is even better - faecal samples are collected just before drenching and again ten days later. **If the egg count is reduced by less than 95%, resistance is present to the product used.**

A huge advantage dairy farms have over other cattle farming systems is the presence of a majority of mature cattle which have developed their own natural resistance to worms. These mature cattle protect vulnerable young stock by eating and destroying a lot of the infectious worm larvae present on the pasture.

The mature cows also provide **refugia**. This is a new word for a place where susceptible worm populations can survive safe from drenches. The idea is that you **deliberately conserve susceptible worm populations on your farm** to interbreed with, and dilute, the resistant ones. This is where some cookies get cross, remembering how vets used to lecture them about the importance of dosing the whole mob before moving them on to clean pasture. That was good advice when we still believed we could kill all the worms but now we know that it actually left a small population of resistant worms with only themselves to interbreed with and hastened the day when the entire population became resistant. **Current advice is to drench only the animals which need it, and only when they need it.**

### **How do these ideas translate into practicalities on the farm?**

- Drenching mature cows in good condition will select for resistant worms. Claims of increased milk production do confuse the issue.
- Adult cattle can disinfect paddocks if they are well chewed down so there is little shelter for any remaining worm larvae.
- Drenching young stock less often allows them to build up their own natural immunity faster than if they are dosed too often.
- Using combination drenches slows down the rate at which the worms develop resistance.

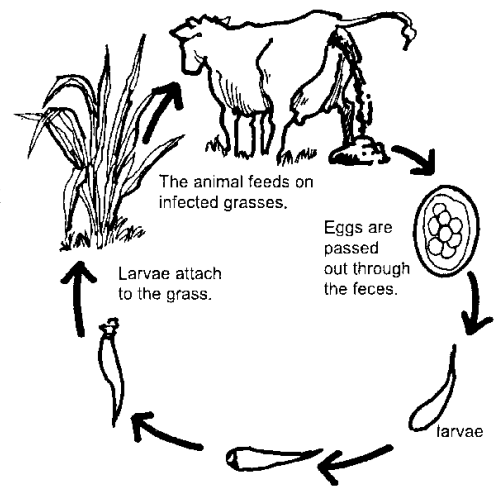
### **So how often should you drench your calves?**

This is a compromise: the more often you drench, the quicker you will breed resistant worms. The less often you drench, the more likely you will lose growth, and animals will have decreased growth rates before you see visible signs of scouring or ill thrift.

So how often you should drench depends firstly on how well the calves' immune systems are functioning and secondly on how big the worm challenge is.

#### Immune system.

Immune system function is affected by age, health and feeding. Calves are born with a very poor immune system, they rely on immunity from colostrum for the first 4 – 6 weeks of life. As they get older their immune system becomes more and more efficient. **By two years old, healthy cattle which have been exposed to worms for most of their lives have developed considerable natural resistance (or resilience) to worms.** This resilience breaks down if they are sick or underfed. One of the best defences against worms (and many other diseases) is a full stomach. Extended milk feeding, even at very low levels, also protects calves against the effects of worms.



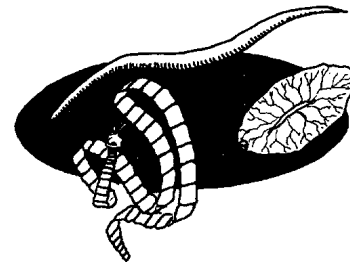
### Worm challenge

Many factors affect the numbers of infectious larvae on the pasture: the weather, level of grass cover, time of year, stocking rate, what class of stock grazed previously and whether or not hay was made last season are just a few. Worm larvae and grass enjoy similar climatic conditions so **if the grass is doing well, you can be sure the worms are too**. Grass doesn't enjoy frost, heat or drought and nor do worm larvae. **The killing effects of frost or drought on worm larvae are greatest when grass cover is low and offers them little shelter.**

Faecal egg counts can give you some indication of infection rates in calves but if larval intakes are high (and they can reach 10,000 larvae per calf per day) a lot of damage is done to the gut by the immature worms before they even begin to lay eggs you can count.

Land which is only grazed by young cattle – such as heifer grazing blocks and run offs – is much more likely to become heavily infected with drench resistant worms than land which is grazed by mature cattle or sheep. It is on this sort of land that you need to be especially careful to avoid breeding up 'super worms'.

There are three main gastrointestinal worm species affecting cattle: *Cooperia*, *Ostertagia* and *Trichostrongylus*. *Cooperia* are the dominant worm species in summer/autumn and cattle begin developing resilience to *Cooperia* at about 9 months of age. Unfortunately widespread resistance has developed in *Cooperia* to the 'mectin' drench family which includes most pour-ons (eg Ivomec, Eprinex, Genesis, Topline, etc) however the levamisole drench family is still working effectively against *Cooperia*. Therefore all R1 stock should be receiving a combination drench containing **levamisole**. *Ostertagia* is the main worm species going into winter and fortunately the 'mectins' are still relatively effective against this worm species. So before winter R1 cattle should not be receiving just single active 'mectin' pour-on or injectables, however after autumn using the 'mectin' pour-ons, can be regarded as OK.



From a resistance perspective, blanket treatment of adult cows is **not** recommended. Instead use selective treatment e.g maybe 'lights', and heifers, as treating whole mobs of adult stock will mean the only worms producing eggs following treatment will be from surviving resistant worms and there will be less dilution on the pasture from susceptible worms. Use a cheaper lice only product such as Niltime or Tempor on the rest of the herd.

### **So, a very general recommendation for drenching dairy calves in this practice would be:**

Calves should be receiving their first drench one month after weaning off milk. It does not need to be sooner than this as milk offers some protection against worms. From then on calves should be drenched at around 1 month intervals for most oral drenches. Orals are cheap and effective. Appropriate combination drenches containing **levamisole** are **Arrest C** and **Oxfen C Plus** (both containing a benzimidazole and levamisole) or **Switch C** (abamectin and levamisole) or the gold standard is the triple combination **Matrix C** (a benzimidazole, levamisole and abamectin).

Where oral drenching is not practical the only combination pour-on is **Eclipse** (abamectin and levamisole) which should be used at 6 week intervals. There is some debate regarding the use of pour-ons in possibly increasing resistance due to misapplication and the way they are absorbed. **Eclipse E** is a new combination injectable (eprinomectin and levamisole) and may be the better choice.

Injectable Eclipse E (being a combination) or Dectomax (doramectin), although it is a single active injectable 'mectin', can have a place as the **first** worm treatment as eprinomectin in Eclipse E injectable and doramectin in Dectomax both have a higher safety margin than abamectin. See the previous newsletter regarding abamectin toxicity in young calves. When using injectable products animals should be spray marked as they are treated to prevent double dosing.

Orals drenches do not treat against lice but after Christmas lice are rarely an issue until winter. 'Mectin' pour-ons are effective against lice. If using an oral drench during the lice period then an application of **Tempor** (lice only) pour-on may be needed too. If you have a problem with lungworm the 'mectin' family is particularly effective.

It is becoming more popular to run calves 2 or 3 to a paddock which decreases the larval challenge on the young stock however drenching, at a slightly extended interval, will still be needed as they will still obtain a worm burden which will decrease their growth rate. Pasture worm larvae challenge generally increases in the spring before Christmas, drops off slightly in a dry summer and peaks in the autumn with the flush of grass so it is important to keep up with your drenching program through to winter.

### **SUMMARY**

Most dairy farms in Taranaki already have resistant worms. If we do not change our drenching practices to slow the spread of this resistance it will force us to change the way we raise our calves. So:

- ◆ Find out if your drench is working as well as it should. Do a Drench Test next time you drench your calves. Collect dung samples the day you drench them and again 10 days later.
- ◆ Stop drenching animals which don't need it.
- ◆ Stop drenching by the calendar, consider the likely larval challenge, feed levels and the animals' condition.
- ◆ Start using a combination drench **now**, don't wait for resistance to develop first.

And if this is all as clear as mud, ask for help. That's what we're here for!

*Polly Otterson and Jimmy Bruce*